

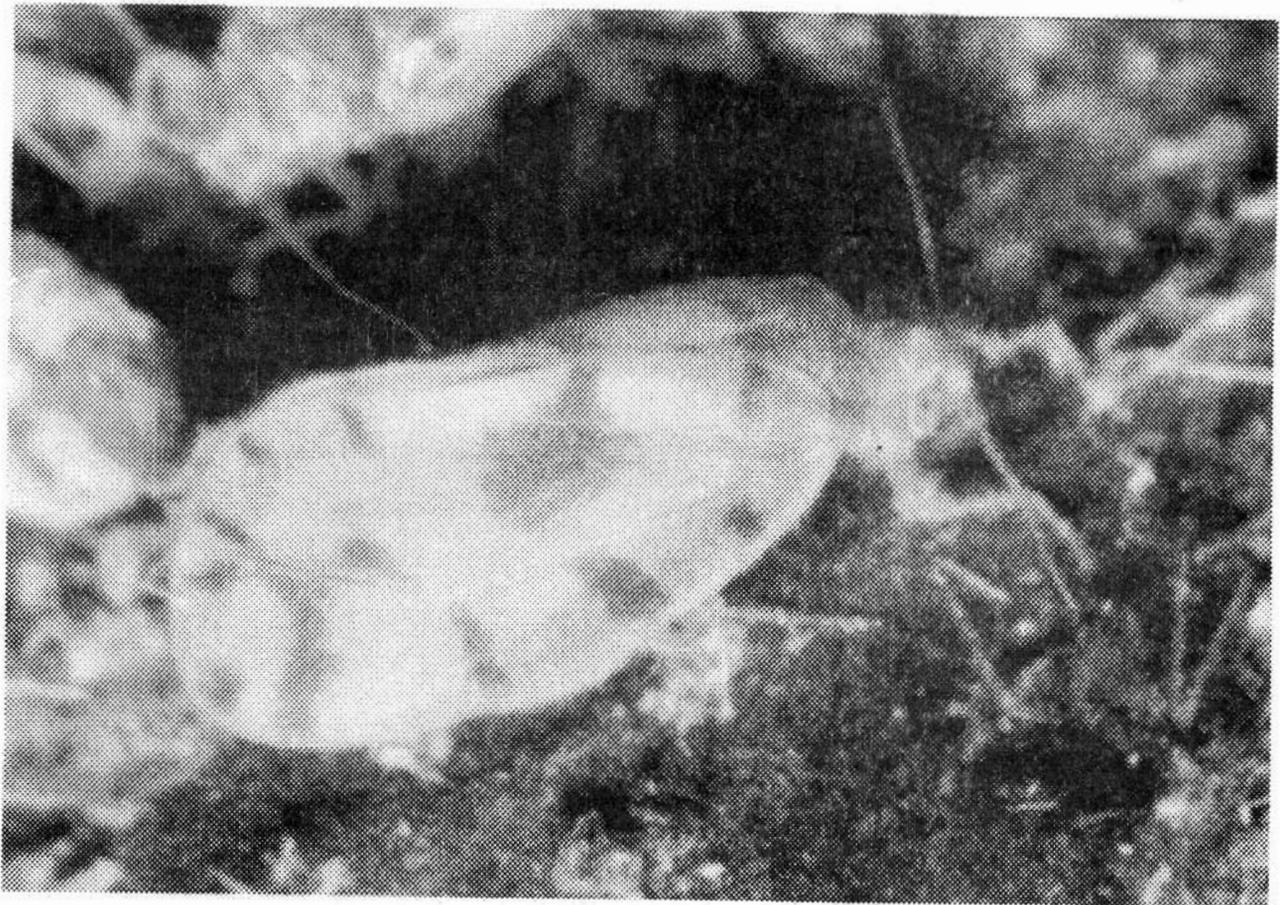
CALIFORNIA PLANT PEST and DISEASE REPORT



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California Department of Food and Agriculture 1220 N Street, Sacramento, California 95814



Giant Whitefly, *Aleurodicus dugesii*

An adult of this exotic tropical whitefly--found for the first time in California.

See story on pages 78-81.

CALIFORNIA PLANT PEST AND DISEASE REPORT

Editor: Raymond J. Gill
Production Assistant:
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- The first report details the collections of exotic Hawaiian fruit flies which were intercepted from first class mail packages being sent from Hawaii to the mainland. This mail survey was alluded to previously in an earlier edition of CPPDR [1990, 9(3-4): 151-153]. The current report, compiled by Dick Brown of the CDFA Pest Exclusion Branch, details the findings during the entire detection effort. The report can be found on pages 62-64.
- The second report contains a list of the acreages of noxious weeds presently under containment or eradication in the state of California. The report is compiled by Nate Dechoretz of the CDFA Control and Eradication staff. The report will be found on pages 65-68.
- The third report covers the pink bollworm program currently in operation in the San Joaquin Valley area of California. The program is designed to prevent the permanent establishment of economic populations of this serious cotton pest. The report is compiled by Dell Clark of the CDFA Control and Eradication Branch. The report can be found on pages 69-70.

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USDA HAWAII FIRST-CLASS MAIL PROJECT REPORT

Dick Brown

Documentation of prohibited fruit fly host material interceptions has irrefutably established first-class mail as a major pathway for the entry into California of exotic fruit fly pests. Historically, the interception of live exotic pests in the mail can be traced back to 1930, when, in Los Angeles, live Mediterranean fruit fly larvae were found by postal workers and agricultural inspectors in a package of mangoes sent from Honolulu destined for a Los Angeles address. Until recently, a conservative interpretation of U.S. postal regulations essentially excluded agricultural inspections of suspect first-class mail parcels. The Congressional passage of Public law 100-574, in November 1988, strengthened existing plant quarantine regulations by making it a criminal offense to use first-class mail to ship prohibited plant material. Offenders are subject to fines up to \$1,000, a jail term of one year, or both. In addition, civil penalties can also be assessed by the USDA under the Plant Pest Act and the Plant Quarantine Act.

To enforce these new regulations, a cooperative program among State Departments, the U.S. Postal Service and the USDA was initiated in May 1990 to design a mutually acceptable protocol for inspection of first-class mail parcels at the Honolulu, Hawaii main post office. The current program consists of exposure of suspicious packages to a trained dog, the procurement of search warrants for packages the dog confirms as suspect for containing prohibited plant material, the actual inspection of the packages, the appropriate assessment of civil penalties, and detailed record keeping.

Implementation of this program, between May 1990 and December 1992 (32 months), resulted in the confiscation of 1,017 mail parcels which contained 8,367 pounds of prohibited plant material (mostly fruit).

Of these 1,017 parcels intercepted, 536 (52.7%) were destined for California locations.

Of the 1,017 total parcels, 425 (41.8%) were found to be infested with various quarantinable pests.

Of the 425 parcels found infested, 80 (18.8%) contained live fruit fly larvae.

The 80 fruit fly infestations included Oriental FF (41), Melon FF (21), Mediterranean FF (14), Malaysian FF (1), and unidentifiable TEPHRITIDAE (3).

Of the 80 fruit fly infested parcels, 46 (57.5%) were destined to California locations.

The 46 fruit fly infested parcels destined to California were found to contain larvae of Oriental FF (28), Mediterranean FF (8), Melon FF (8), and unidentifiable TEPHRITIDAE (2).

USDA HAWAII FIRST-CLASS MAIL PROJECT SUMMARY

(May 1990 to Dec. 1992 = 32 Months)

| | May 90 - Apr. 91 | May 91 - Apr. 92 | May 92 - Dec. 92 PARTIAL YEAR* | PROGRAM TOTALS |
|-------------------------------|------------------|------------------|-----------------------------------|-------------------|
| TOTAL Target Parcels | 590 | 269 | 158 | 1,017 |
| CA Parcels | 329 | 140 | 67 | 536 |
| Contraband seized (pounds) | 1,580 | 1,720 | 1,067 | 8,367 |
| TOTAL Pests Intercepted | 245 | 112 | 68 | 425 |
| TOTAL Fruit Fly Interceptions | 50 | 15 | 15 | 80 |
| Mediterranean Fruit Fly | 6 | 1 | 7 | 14 |
| Oriental Fruit Fly | 29 | 7 | 5 | 41 |
| Melon Fruit Fly | 12 | 7 | 2 | 21 |
| Malaysian Fruit Fly | 1 | 0 | 0 | 1 |
| Other TEPHRITIDAE | 2 | 0 | 1 | 3 |
| Fruit Flies from CA Parcels | 31 | 8 | 7 | 46 |

PARTIAL YEAR: May - Dec. 1992
Resulting in TOTAL of only 32 Months

CALIFORNIA DESTINATION FRUIT FLY DATA
 USDA FIRST-CLASS MAIL PROJECT

| <u>Date</u> | <u>Destination, Zip</u> | <u>Host</u> | <u>Pest</u> | <u>Stage</u> |
|-------------|-------------------------|----------------|---------------|---------------------|
| 06/19/90 | Fullerton, 92632 | Mango | B. dorsalis | 5 larvae |
| 06/20/90 | Petaluma, 94952 | Guava | B. dorsalis | 14 larvae |
| 06/21/90 | Long Beach, 90813 | Litchi | TEPHRITIDAE | 1 larva |
| 06/26/90 | Fresno, 93702 | Mango | B. dorsalis | 8 larvae |
| 06/26/90 | Fresno, 93702 | Mango | B. dorsalis | 14 larvae |
| 06/26/90 | San Diego, 92154 | Mango | B. dorsalis | 11 larvae |
| 06/29/90 | Milpitas, 95035 | Litchi | B. dorsalis | 1 larva |
| 07/03/90 | Hollywood, 90028 | Mango | B. dorsalis | 18 larvae |
| 07/06/90 | Santa Clara, 95051 | Soursop | B. dorsalis | 20 larvae |
| 07/06/90 | Port Hueneme, 93041 | Mango | B. dorsalis | 10 larvae |
| 07/13/90 | Garden Grove, 92641 | Chicle | B. dorsalis | 24 larvae |
| 07/17/90 | Rosemead, 91770 | Soursop | B. dorsalis | 17 larvae |
| 07/31/90 | Sacramento, 95815 | Guava | C. capitata | 50 larvae |
| 07/31/90 | Sacramento, 95815 | Guava | C. capitata | 25 larvae |
| 07/31/90 | Sacramento, 95824 | Guava | C. capitata | 23 larvae |
| 07/31/90 | San Diego, 92073 | Mango | B. dorsalis | 55 larvae |
| 08/02/90 | Walnut, 91789 | Bittermelon | B. cucurbitae | 25 larvae |
| 08/03/90 | Costa Mesa, 92626 | Mango | B. dorsalis | 3 larvae |
| 08/07/90 | San Jose, 95122 | Guava | B. dorsalis | 1 larva |
| 08/07/90 | Alameda, 94501 | Mango | B. dorsalis | 75 larvae |
| 08/07/90 | San Jose, 95121 | Guava | B. dorsalis | 4 larvae |
| 08/09/90 | Van Nuys, 91405 | Dragon eye | B. dorsalis | 3 larvae |
| 08/10/90 | Westminster, 92683 | Soursop | B. dorsalis | 10 larvae |
| 08/16/90 | San Francisco, 94117 | Banana | B. dorsalis | 2 larvae |
| 08/17/90 | Sherman Oaks, 91623 | Mango | B. dorsalis | 75 larvae |
| 08/30/90 | Westminster, 92683 | Chicle | C. capitata | 25 larvae |
| 09/12/90 | Long Beach, 91810 | Chicle | C. capitata | 1 larva + 18 pupae |
| 10/04/90 | San Jose, 95121 | Starfruit | B. dorsalis | 10 larvae |
| 10/26/90 | San Jose, 95116 | Chicle | B. dorsalis | 9 larvae |
| 11/29/90 | Los Angeles, 90026 | Bittermelon | B. cucurbitae | 75 larvae + 9 pupae |
| 02/05/91 | Sacramento, 95834 | Bittermelon | B. cucurbitae | 8 larvae |
| 05/07/91 | Oxnard, 93035 | Mango | B. dorsalis | 300 larvae |
| 05/30/91 | San Jose, 95127 | Bittermelon | B. cucurbitae | 40 larvae |
| 05/30/91 | Union City, 94587 | Bittermelon | B. cucurbitae | 18 larvae |
| 06/18/91 | San Jose, 95131 | Squash | B. cucurbitae | 3 larvae |
| 06/27/91 | Sanger, 93657 | Passionfruit | B. dorsalis | 20 larvae + 4 pupae |
| 07/17/91 | San Jose, 95125 | Luffa | B. cucurbitae | 18 larvae |
| 09/19/91 | Campbell, 95008 | Guava | B. dorsalis | 108 larvae |
| 10/16/91 | San Jose, 95131 | Bittermelon | B. cucurbitae | 23 larvae |
| 06/23/92 | Yuba City, 95991 | Mountain apple | TEPHRITIDAE | 4 larvae + 5 pupae |
| 06/26/92 | Walnut, 91789 | Mango | B. dorsalis | 2 larvae |
| 07/01/92 | Milpitas, 95035 | Mountain apple | B. dorsalis | 81 larvae |
| 07/29/92 | San Francisco, 94102 | Soursop | C. capitata | 12 larvae |
| 07/30/92 | Whittier, 90603 | Mango | C. capitata | 64 larvae |
| 08/06/92 | Campbell, 95008 | Soursop | C. capitata | 10 larvae |
| 08/11/92 | Yorba Linda, 92686 | Peppers | B. dorsalis | 13 larvae |

Ceratitidis capitata = Mediterranean fruit fly = 8
Bactrocera (Dacus) cucurbitae = Melon fruit fly = 8
Bactrocera (Dacus) dorsalis = Oriental fruit fly = 28
 TEPHRITIDAE = Unidentifiable fruit fly larvae = 2

| |
|----------------------------|
| TOTAL (To Date): 46 |
| R.R. Brown |
| Revised 02/04/93 |

NOTE: Program started: May 22, 1990

WEED PROJECT ACTIVITIES

Nate Dechoretz

The California Department of Food and Agriculture has been dedicated for a long time to the control of exotic and potentially destructive weed species in the interests of protecting the agricultural production areas of the state. The following report by Nate Dechoretz summarizes the current CDFA noxious weed eradication and suppression programs:

Terrestrial noxious ("A" rated) weeds pose a serious threat to California's agriculture and natural resources. In cooperation with other public and private agencies and organizations, CDFA staff utilize various chemical, mechanical and biological methods to eradicate, contain, or suppress 26 species throughout California.

Approximately 6,800 net acres are currently infested in California. However, seven "A" rated weed species, covering about 5,700 acres, are under containment in one area of the state while eradication is being conducted in other areas of the state. These infestations are watched carefully and, if found beyond boundary lines, treatment activities are initiated to prevent further spread. Eradication is actively pursued to eliminate noxious plants infesting about 1,100 net acres. A table of the "Net and Gross Acreage of Noxious Weeds in California by District" is presented on page 68.

District Weed Eradication Programs

Redding District

Noxious weeds (17 species) are a serious problem in the 12 counties which comprise the Redding District. Halogeton in Modoc and Lassen counties, dalmatian toadflax and diffuse knapweed in Trinity County, biddy biddy in Humboldt County, and squarrose knapweed in Siskiyou and Lassen counties are under containment. These weeds represent 5,594 of the total 6,447 net infested acres. The remaining 853 acres are under eradication and range from 661.58 net acres of Scotch thistle to a few scattered plants of bearded creeper found in Modoc County in 1991.

Scotch thistle, an exotic range weed, is spread over 56,500 acres of range and forest areas, some of which is in rough mountain terrain. A significant portion of this infestation is treated by aerial application under contract to Modoc County. The 661 acres recorded in 1991 compares to a 756 and 1,130 net acres in 1990 and 1977 (peak level), respectively.

Sacramento District

Nine "A" rated weeds are currently under eradication in the 14 counties of the Sacramento District. An infestation of bearded creeper, first found in Sonoma County in 1989, is the largest eradication project in this district. An extensive delimiting survey was conducted in 1991. Results of this survey indicate this weed occupies approximately 100 net acres over a 1,100 acre area. This infestation constitutes 74.9 % of the infested acreage in the Sacramento District.

Eradication of biddy biddy and Scotch thistle was achieved in Marin and Sacramento counties, respectively. However, new infestations of dalmatian toadflax in Yolo County and Scotch thistle in Mendocino County were found and treated this past year.

Ceres District

When compared to the other four districts, noxious weeds are not a major problem in the Ceres District. Skeletonweed in Amador and Calaveras counties represent 57.6 % of the district's entire infestation. There are 25 separate infestations of skeletonweed in Amador County. County and state personnel chemically treated most sites. In some areas, plants were rogued out due to close proximity of sensitive crops.

Four locations of skeletonweed in Calaveras County were surveyed and treated by state and county personnel. Except for the infestation adjacent to the Mokelumne River, infested areas were chemically treated. Thirty-seven plants were removed by hand at the Mokelumne River site.

Golden thistle eradication continues to be actively pursued by the Alameda County Department of Agriculture. A total of 255 county person-hours were expended in the survey and treatment of this infestation. Eighty-nine plants were found in 1991, an increase of 70 over the number of plants found in 1990.

A single spotted knapweed plant was found and removed by an alert Alameda County biologist. This find was the first record of this weed in Alameda County.

Fresno District

Scotch thistle, halogeton, and skeletonweed represent 99.8 % of the infested area in the Fresno District. Although halogeton is being contained in Inyo/Mono counties, a 25-foot long roadside infestation was treated by county personnel to prevent further spread. No other treatments were reported. However, an active halogeton eradication program continues in Kern County. Fifty plants were found and removed from three roadside locations.

Scotch thistle currently infests 18.4 net acres of rangeland and 5.2 net acres of cropland in Tulare County. State and county personnel treated all infested rangeland sites and cropland sites which border on rangeland. Private landowners maintain control of Scotch thistle on cropland which is not adjacent to rangeland.

Dalmatian toadflax infestation in Mono County has been significantly reduced during 1991. Eradication activities between July and November resulted in the detection and treatment of 588 plants. Net acres infested over past three years has been 1.1 over a 22.6 acre area.

The alligatorweed eradication program in Tulare and Kings Counties continues to show excellent progress. No plants were found in Kings County while only 27 plants were found

and treated in Tulare County. In 1965, approximately 167 acres were heavily infested with alligatorweed.

In 1991, an infestation of spotted knapweed was declared eradicated from Fresno County.

Riverside District

Noxious weeds infest 146.44 net acres of land within eight counties of the Riverside District. Halogeton in San Bernardino County and punagrass in Santa Barbara County constitutes 69 % (101 acres) of the infested area in the district.

In San Bernardino County, the net acres infested with halogeton increased from 10 in 1990 to 60 in 1991. As a result the county utilized 253 hours, CDFA 98 hours, and CalTrans 250 hours towards the eradication program. The treatment program incorporated both chemical and mechanical control methods. Hoeing to remove established plants encouraged the germination of dormant seeds allowing for further treatment.

The harmel infestation has also increased in San Bernardino County. Plants have spread from the original infested pasture to areas around a subdivision and native desert landscape surrounding the subdivision. County and state personnel contributed 10 and 27 hours respectively towards survey and treatment.

Progress towards eradication of alligatorweed and dudaim melon has been excellent. In Imperial County, personnel from the county agricultural commissioner's office spent 368 hours on surveying and roguing efforts during the 1991 growing season. The net acreage was reduced from 120 in 1990 to one in 1991. The landowners diligent commitment to remove and destroy plants resulted in no plants being found in agricultural areas this year. The only plants found were located along an irrigation canal.

Los Angeles County continues to actively pursue the eradication of alligatorweed from numerous areas in the county. A total of 175 plants were detected and treated at 57 sites in 1991. This represents a substantial reduction from the peak level of 115 heavily infested net acres in 1956.

After negative surveys over the past three years, alligatorweed was declared eradicated from San Diego County.

Note: For complete maps of the California "A" and "B" rated noxious weeds up to 1990 see CPPDR issues 9(1-2): 4-44 and 9(3-4): 74-125. See each subsequent CPPDR issue for more recent updates.

Net (N) and Gross (G) Acreage of Noxious Weeds in California by District

| <u>Weed Name</u> | <u>Redding</u> | <u>Sacramento</u> | <u>Ceres</u> | <u>Fresno</u> | <u>Riverside</u> | <u>Totals</u> |
|---------------------|-------------------------|---------------------|-------------------|----------------------|---------------------|-------------------------|
| Alligatorweed | | | | .06/421 | .02/5,827 | .08/6,248 |
| Bearded Creeper | .01/5 | 100.00/1,100 | | | | 100.01/1,105 |
| Biddy Biddy | 3.00/390 | 10.00/100 | .61/3 | | | 13.61/493 |
| Camelthorn | | | | | 4.01/367 | 4.01/367 |
| Capeweed | .40/30 | | | | .40/30 | .40/30 |
| Dalmatian Toadflax | 34.93/3,394 | 2.92/187 | .01/10 | .03/493 | 35.00/102 | 72.89/4,186 |
| Diffuse Knapweed | 41.87/3,625 | 52/1 | | .01/1 | | 42.40/3,627 |
| Distaff Thistle | .01/2 | | | | | .01/2 |
| Dudaim Melon | | | | | 1.00/260 | 1.00/260 |
| Golden Thistle | | | .01/700 | | | .01/700 |
| Groundcherry | .05/480 | | | | | .05/480 |
| Halogeton | 4,550.00/32,640 | | | 50.01/716 | 60.01/257 | 4,660.02/33,613 |
| Harmel | | | | .01/1 | 5.00/80 | 5.01/81 |
| Iberian Starthistle | | 8.05/950 | | | | 8.05/905 |
| Illyrian Thistle | | | .01/1 | | | .01/1 |
| Leafy Spurge | 9.04/7,161 | | | | | 9.04/7,161 |
| Musk Thistle | 30.22/9,950 | .03/4 | | | | 30.25/9,954 |
| Plumeless Thistle | .01/30 | .71/95 | | | | .72/125 |
| Punagrass | | | .01/100 | | 41.10/310 | 41.11/311 |
| Salsola | | | | .07/120 | | .07/120 |
| Scotch Thistle | 661.58/56,538 | 1.11/343 | .01/100 | 23.45/22,735 | .02/5 | 686.17/79,721 |
| Skeletonweed | .10/2 | 10.20/1,001 | .96/343 | 33.12/1,719 | | 44.38/3,065 |
| Spotted Knapweed | 48.27/1,632 | .13/57 | .05/1 | .03/1 | .25/1 | 48.73/1,692 |
| Squarrose Knapweed | 1,067.70/5,500 | | | | | 1,067.70/5,500 |
| Taurian Thistle | .18/530 | | | .01/100 | | .19/360 |
| Yellowspine Thistle | | | | | .03/85 | .03/85 |
| TOTALS | 6,447.37/121,909 | 113.67/3,838 | 1.67/1,159 | 106.80/26,307 | 146.44/7,294 | 6,835.95/160,507 |

PINK BOLLWORM PROGRAM IN THE SAN JOAQUIN VALLEY

Dell O. Clark

California Department of Food and Agriculture

Since 1967, pink bollworm damage to San Joaquin Valley cotton has been prevented by a cooperative county-state-federal program. Prevention is being achieved by the use of high technology and modern scientific practices rather than conventional pesticides. (We have only had to use conventional pesticides in one year during the past 22 years and that was 1990.) State personnel monitor up to 1.5 million acres of cotton using pheromone (sex lure) baited traps to detect incipient infestations of pink bollworm. These infestations are then eradicated by release of sterile pink bollworm moths and with pheromone treatments to disrupt mating before destructive populations can develop. The sterile moths are reared at the USDA facility in Phoenix, Arizona, and aeri ally released in the San Joaquin Valley. Growers shred and plow-under cotton stalks following harvest and maintain a 90-day host-free period during the winter months to prevent overwintering of incipient infestations resulting from late season moth blow-ins.

During 1992, project personnel mapped 1,166,134 acres of cotton in the six county cotton growing area of the San Joaquin Valley. This acreage is up 5.3% from the 1,103,962 acres mapped in 1991. Pima cotton planting amounted to 127,947 acres or 11% of the total acreage planted. The remaining 1,038,187 acres (89%) were planted to Acala cotton.

General trapping activities (one trap per 60 acres of cotton) began June 1. Total traps deployed was about 19,446 and were inspected weekly through October 22. All traps were removed by October 29. Early season trapping was done from May through June to detect possible overwintering populations in areas having last year's native catches. These areas are trapped at one trap per 20 acres. There is a special desert trap line to detect blow-in activity.

This season the pink bollworm taxonomy lab in Visalia examined 44,925 traps containing suspect moths submitted by trappers. Totals of 1,720,241 sterile and 115 native moths have been identified this season in these San Joaquin Valley traps. The number of traps examined and the number of steriles identified is substantially lower than last year.

Trapping of blow-in moths, from Southern California and Western Arizona cotton growing regions, usually begins in late September. Traps in the desert trap line, used to detect blow-in activity, caught no native moths this season.

**HISTORIC NATIVE MOTH CAPTURES
IN SAN JOAQUIN VALLEY COUNTIES BY YEAR**

| <u>YEAR</u> | <u>1987</u> | <u>1988</u> | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> |
|--------------|-------------|-------------|-------------|--------------|-------------|-------------|
| KERN | 116 | 265 | 122 | 1,588 | 151 | 68 |
| TULARE | 38 | 255 | 10 | 1,459 | 16 | 10 |
| KINGS | 66 | 282 | 10 | 59 | 16 | 7 |
| FRESNO | 71 | 70 | 10 | 51 | 79 | 21 |
| MADERA | 3 | 10 | 2 | 7 | 1 | 1 |
| MERCED | 0 | 10 | 2 | 18 | 0 | 8 |
| TOTAL | 294 | 891 | 166 | 3,239 | 263 | 115 |

Aerial releases of sterile moths were to begin May 12, but were made from the ground by hand until contractual problems were solved. On May 15, aerial releases began and continued through October 16, averaging well over four million moths per release day. Releases totalled over 702 million moths (702,545,374). Release rates and the acreage released over are determined by the number of native moths caught both from the previous and current season. Path-Link System computers record and display daily flight paths for each aircraft. Sterile moth distribution is also monitored by trap catches.

In addition to sterilized moths, the program can use the aerial pheromone confusion technique. The confusion technique causes mating disruption for up to two weeks, preventing reproduction during that period. This year no pheromone was used due to low numbers of native moths trapped.

A bloom and boll survey was continued this year and the results of intensive surveys were negative.

The assessment fee continues at \$2.50 per bale, averaging about \$5 per acre, which is considered to be a reasonable price for eliminating such a potentially hazardous pest in the San Joaquin Valley.

Reports of sweetpotato whitefly, Strain B, being found in several counties in the San Joaquin Valley could be a serious threat to many of the crops in the Valley as it has in Southern California.

ENTOMOLOGY HIGHLIGHTS

CORRECTION: In the last issue of the CPPDR [11(3-4): 48], *Siphanta acuta* was mistakenly listed as a C-rated pest. Torpedo bug has a B-rating in California.

MEDITERRANEAN FRUIT FLY, *Ceratitis capitata*, -(A)- Between October and December, a number of medflies were present in **Los Angeles** and **San Diego** counties. A medfly find summary for the year 1992 includes: 202 adults trapped in Los Angeles County, 129 adults trapped in Santa Clara County, two trapped in San Diego County, and one trapped in Orange County back at the beginning of the year. The tables on the following pages outline the the most recent finds.

ORIENTAL FRUIT FLY, *Bactrocera dorsalis*, -(A)- This fruit fly was found in **Los Angeles, San Diego,** and **San Bernardino** counties during the last part of the year. The table on page 75 has a complete list of these finds. The summary of 1992 Oriental fruit fly finds includes: 12 trapped adults in Los Angeles County, 16 adults in San Diego County, three in Orange County, two in Santa Clara County, and one adult trapped in San Bernardino County.

MEXICAN FRUIT FLY, *Anastrepha ludens*, -(A)- Two Mexican fruit flies were found in **San Diego** in late 1992. The table on page 75 outlines the finds. Twelve of these fruit flies were found in San Diego, Los Angeles, and Santa Clara counties for all of 1992.

GUAVA FRUIT FLY, *Bactrocera correcta*, -(A)- Another guava fruit fly has been trapped in **Los Angeles** County, making five total adults that were trapped in that county for 1992. See the listing on page 75.

APPLE MAGGOT, *Rhagoletis pomonella*, -(A)- Small numbers of this apple pest were trapped in the infested northwestern area of California during the fall of this year. For a list of the finds see the table on page 76.

JAPANESE BEETLE, *Popillia japonica*, -(A)- Rounding out the year, one more Japanese beetle was found in West Covina, **Los Angeles** County, by trapper Dennis Knoles on September 25. The year totals include: five adults trapped in Los Angeles County, three adults trapped in San Mateo County, one adult trapped in San Bernardino County, one adult trapped and one adult visually identified in Alameda County, plus 434 total Japanese beetles intercepted at airports.

PINK BOLLWORM, *Pectinophora gossypiella*, -(A)- This serious cotton pest is still trying to gain a foothold in the cotton-producing areas of the San Joaquin Valley. Covering the activities of the eradication program against this insect is a summary report by Dell Clark on pages 69-70.

NEW STATE RECORDS

PICKLEWORM, *Diaphania nitidalis*, -(B)- This moth, in the family Pyralidae, has been known for many years as a pest of cucurbits. It is recorded as a serious pest in the South Atlantic and Gulf Coast states. It occurs throughout most of North America east of the Rockies, and extends down to South America. It is also known from La Paz, Baja California, Mexico. Its close relative, the

Mediterranean Fruit Fly, *Ceratitis capitata*, -(A)- 1992 Collections

| County | City | Date | #M/F/Stage | Trap | Host | Collectors |
|-------------|---------------|----------|------------|---------------|-------------|-------------|
| Los Angeles | Los Angeles | 09/29/92 | 0/1 | Yellow Sticky | guava | Bingham |
| Los Angeles | Los Angeles | 09/29/92 | 1/0 | Yellow Sticky | guava | Miller |
| Los Angeles | Los Angeles | 09/29/92 | 1/0 | Yellow Sticky | guava | Bingham |
| Los Angeles | Los Angeles | 09/29/92 | 1/0 | Yellow Sticky | sycamore | Cumberland |
| Los Angeles | Los Angeles | 09/29/92 | 1/0 | Yellow Sticky | orange | Cumberland |
| Los Angeles | Los Angeles | 09/29/92 | 0/1 | Yellow Sticky | orange | Bingham |
| Los Angeles | Los Angeles | 09/29/92 | 0/1 | Yellow Sticky | avocado | Miller |
| Los Angeles | Los Angeles | 09/29/92 | 1/0 | Yellow Sticky | ornamental | Miller |
| Los Angeles | Inglewood | 10/01/92 | 1/1 | Yellow Sticky | shade tree | Finley |
| Los Angeles | Duarte | 10/01/92 | 1/0 | Yellow Sticky | citrus | O'Connell |
| Los Angeles | Duarte | 10/01/92 | 0/1 | Yellow Sticky | orange | Ogake |
| Los Angeles | Los Angeles | 10/02/92 | 1/0 | Yellow Sticky | ornamental | Takahashi |
| Los Angeles | Los Angeles | 10/02/92 | 0/1 | Yellow Sticky | avocado | Suhr |
| Los Angeles | Los Angeles | 10/02/92 | 1/0 | Yellow Sticky | carrotwood | Takahashi |
| Los Angeles | Los Angeles | 10/02/92 | 1/0 | Yellow Sticky | apricot | Takahashi |
| Los Angeles | Duarte | 10/02/92 | 1/0 | Yellow Sticky | orange | Ogake |
| Los Angeles | Los Angeles | 10/14/92 | 0/1 | McPhail | peach | R. R. |
| Los Angeles | Los Angeles | 10/14/92 | 1/0 | Yellow Sticky | calamondin | Price |
| Los Angeles | Griffith Park | 10/02/92 | 1/0 | Yellow Sticky | fig | Miller |
| Los Angeles | Duarte | 10/03/92 | 2/0 | Yellow Sticky | sumac | Stewart |
| Los Angeles | Los Angeles | 10/02/92 | 1/0 | Yellow Sticky | lemon | Takahashi |
| Los Angeles | Inglewood | 10/03/92 | 1/0 | Jackson | avocado | Sweel |
| Los Angeles | Duarte | 10/01/92 | 1/0 | Yellow Sticky | lemon | O'Connell |
| Los Angeles | Duarte | 10/01/92 | 1/0 | Yellow Sticky | ornamental | O'Connell |
| Los Angeles | Duarte | 10/03/92 | 2/0 | Yellow Sticky | orange | Stewart |
| Los Angeles | Duarte | 10/01/92 | 3/0 | Yellow Sticky | walnut | O'Connell |
| Los Angeles | Duarte | 10/01/92 | 2/0 | Yellow Sticky | avocado | O'Connell |
| Los Angeles | Duarte | 10/01/92 | 0/1 | Yellow Sticky | fig | O'Connell |
| Los Angeles | Duarte | 10/03/92 | 6/0 | Yellow Sticky | plum | Stewart |
| Los Angeles | Duarte | 10/01/92 | 1/0 | Yellow Sticky | ornamental | O'Connell |
| Los Angeles | Duarte | 10/01/92 | 1/0 | Yellow Sticky | citrus | O'Connell |
| Los Angeles | Duarte | 10/02/92 | 1/0 | Jackson | peach | Inguito |
| Los Angeles | Los Angeles | 10/02/92 | 1/0 | Yellow Sticky | avocado | Rocha Jr. |
| Los Angeles | Duarte | 10/03/92 | 1/0 | Yellow Sticky | bottlebrush | Hendrickson |

Mediterranean Fruit Fly, *Ceratitis capitata*, -(A)- 1992 Collections

| County | City | Date | #M/F/Stage | Trap | Host | Collectors |
|-------------|-------------|----------|------------|---------------|------------|-----------------|
| Los Angeles | Los Angeles | 10/10/92 | 1/0 | Yellow Sticky | orange | Smallbone/Suhr |
| Los Angeles | Los Angeles | 10/10/92 | 2/0 | Yellow Sticky | ornamental | Meinders |
| Los Angeles | Los Angeles | 10/09/92 | 0/1 | Jackson | guava | Saner |
| Los Angeles | Los Angeles | 10/10/92 | 3/0 | Yellow Sticky | loquat | Duffel/Campbell |
| Los Angeles | Duarte | 09/30/92 | 1/0 | Yellow Sticky | sapote | Maxwell |
| Los Angeles | Westchester | 10/05/92 | 0/1 | Yellow Sticky | peppertree | Takahashi |
| Los Angeles | Duarte | 09/30/92 | 1/1 | Yellow Sticky | sweet gum | Beguico |
| Los Angeles | Westchester | 10/06/92 | 1/0 | Yellow Sticky | avocado | Paies |
| Los Angeles | Duarte | 09/30/92 | 1/0 | Yellow Sticky | apple | Maxwell |
| Los Angeles | Los Angeles | 10/06/92 | 1/0 | Yellow Sticky | lime | Chevis/Cappel |
| Los Angeles | Duarte | 09/30/92 | 12/0 | Yellow Sticky | avocado | Maxwell |
| Los Angeles | Los Angeles | 10/08/92 | 1/0 | Yellow Sticky | ornamental | Marisol |
| Los Angeles | Duarte | 09/30/92 | 4/0 | Yellow Sticky | orange | Maxwell |
| Los Angeles | Duarte | no date | 4/0 | Yellow Sticky | loquat | Maxwell |
| Los Angeles | Duarte | 09/30/92 | 2/0 | Yellow Sticky | apple | Beguico |
| Los Angeles | Duarte | 09/30/92 | 3/0 | Yellow Sticky | peach | Maxwell |
| Los Angeles | Duarte | 09/30/92 | 2/0 | Yellow Sticky | guava | Beguico |
| Los Angeles | Duarte | 09/30/92 | 5/0 | Yellow Sticky | apple | Maxwell |
| Los Angeles | Duarte | 09/30/92 | 1/0 | Yellow Sticky | peach | Beguico |
| Los Angeles | Duarte | 09/30/92 | 1/0 | Yellow Sticky | orange | Beguico |
| Los Angeles | Duarte | 09/30/92 | 1/0 | Yellow Sticky | loquat | Beguico |
| Los Angeles | Duarte | 09/30/92 | 3/0 | Yellow Sticky | orange | Maxwell |
| Los Angeles | Duarte | 09/30/92 | 3/0 | Yellow Sticky | orange | Maxwell |
| Los Angeles | Duarte | 09/30/92 | 1/0 | Yellow Sticky | guava | ? |
| Los Angeles | Duarte | 09/30/92 | 1/0 | Yellow Sticky | orange | Beguico |
| Los Angeles | Arcadia | 09/30/92 | 0/1 | McPhail | peach | Cayetano |
| Los Angeles | Duarte | 09/30/92 | 4/1 | Yellow Sticky | orange | Maxwell |
| Los Angeles | Duarte | 09/30/92 | 3/0 | Yellow Sticky | peach | Beguico |
| Los Angeles | Duarte | 09/30/92 | 1/0 | Yellow Sticky | guava | Maxwell |
| Los Angeles | Duarte | 09/30/92 | 1/0 | Yellow Sticky | ornamental | Beguico |
| Los Angeles | Duarte | 09/30/92 | 1/0 | Yellow Sticky | orange | Maxwell |
| Los Angeles | Duarte | 09/30/92 | 1/0 | Yellow Sticky | Prunus sp. | Chevis |
| Los Angeles | Duarte | 09/30/92 | 1/0 | Yellow Sticky | cottonwood | Beguico |
| Los Angeles | Arcadia | 09/30/92 | 1/0 | Steiner | peach | Carroll |

Mediterranean Fruit Fly, *Ceratitis capitata*, -(A)- 1992 Collections

| County | City | Date | #M/F/Stage | Trap | Host | Collectors |
|-------------|-------------|----------|------------|---------------|------------|------------------------------|
| Los Angeles | Los Angeles | 10/10/92 | 0/1 | Yellow Sticky | peach | Carter |
| Los Angeles | Altadena | 09/29/92 | 1/0 | Steiner | lemon | Rumsey |
| Los Angeles | Duarte | 10/14/92 | L | N/A | peach | Ruiz/Dunbar |
| Los Angeles | Los Angeles | 10/15/92 | 0/1 | Yellow Sticky | fig | Carter |
| Los Angeles | Los Angeles | 10/15/92 | 7/0 | Yellow Sticky | peach | Meinders |
| Los Angeles | Los Angeles | 10/15/92 | 3/0 | Yellow Sticky | fig | Bachli |
| Los Angeles | Los Angeles | 10/15/92 | 1/0 | Yellow Sticky | loquat | Bell/Tebbs |
| Los Angeles | Los Angeles | 10/15/92 | 2/0 | Yellow Sticky | peach | Meinders |
| Los Angeles | Los Angeles | 10/15/92 | 1/0 | Yellow Sticky | ornamental | Price |
| Los Angeles | Duarte | 10/20/92 | L | N/A | peach | Valdez |
| Los Angeles | Los Angeles | 10/02/92 | 1/0 | Yellow Sticky | peach | Tuten |
| Los Angeles | Duarte | 10/02/92 | 1/0 | Jackson | fig | Garcia |
| Los Angeles | Los Angeles | 10/02/92 | 1/0 | Yellow Sticky | ornamental | Matafreshnia |
| Los Angeles | Duarte | 10/02/92 | 0/1 | McPhail | orange | Martinez |
| Los Angeles | Duarte | 10/02/92 | L | N/A | peach | Ruiz/Aldana |
| Los Angeles | Duarte | 10/02/92 | L | N/A | guava | Ruiz/Aldana/Johnson/Anderson |
| Los Angeles | Duarte | 10/02/92 | L | N/A | guava | Johnson |
| Los Angeles | Duarte | 11/03/92 | L | N/A | orange | Valdez/Garcia |
| Los Angeles | Pico Rivera | 11/10/92 | 0/1 | McPhail | orange | Garcia |
| Los Angeles | Artesia | 11/09/92 | 0/1 | McPhail | guava | Aquino |
| San Diego | Oceanside | 11/16/92 | 0/1 | Jackson | guava | Vanarelli |
| Los Angeles | Covina | 11/20/92 | 2/0 | Yellow Sticky | orange | Andersen |
| San Diego | Oceanside | 11/27/92 | 0/1 | Yellow Sticky | rubbertree | Whitcomb |
| Los Angeles | Walnut Park | 11/30/92 | 0/1 | McPhail | guava | Doveiri |
| Los Angeles | Walnut Park | 12/08/92 | 2/0 | Yellow Sticky | avocado | Angeles |
| Los Angeles | Walnut Park | 12/08/92 | 1/0 | Yellow Sticky | lemon | Garcia |

Oriental Fruit Fly, *Bactrocera dorsalis*, -(A)- 1992 Collections

| County | City | Date | #M/F/Stage | Trap | Host | Collectors |
|----------------|------------|----------|------------|---------|-----------|-----------------|
| San Diego | Lakeside | 10/02/92 | 1/0 | Jackson | orange | Hock |
| San Diego | Mira Mesa | 10/14/92 | 0/1 | McPhail | guava | Gardener |
| San Diego | Mira Mesa | 10/19/92 | 0/1 | McPhail | guava | Gardener/Walker |
| Los Angeles | Long Beach | 10/22/92 | 1/0 | Jackson | lemon | Williams |
| San Bernardino | Upland | 10/27/92 | 1/0 | Jackson | orange | Sarmiento |
| San Diego | Mira Mesa | 11/16/92 | 0/1 | McPhail | lemon | Gardener |
| San Diego | Mira Mesa | 12/01/92 | 0/1 | McPhail | guava | Gardener |
| San Diego | Mira Mesa | 12/02/92 | 0/1 | McPhail | tangerine | Gardener |

Mexican Fruit Fly, *Anastrepha ludens*, -(A)- 1992 Collections

| County | City | Date | #M/F/Stage | Trap | Host | Collectors |
|-----------|-----------|-------|------------|---------|--------|------------|
| San Diego | San Diego | 11/10 | 1/0 | McPhail | orange | Johnson |
| San Diego | San Diego | 11/17 | 1/0 | McPhail | lemon | Cardona |

Guava Fruit Fly, *Bactrocera correcta*, -(A)- 1992 Collections

| County | City | Date | #M/F/Stage | Trap | Host | Collectors |
|-------------|----------|----------|------------|---------|--------|------------|
| Los Angeles | Cerritos | 10/28/92 | 1/0 | Jackson | orange | Aquino |

Apple Maggot, *Rhagoletis pomonella*, -(A)- 1992 Collections

| County | City | Date | #M/F/Stage | Trap | Collectors |
|-----------|--------------|----------|------------|------------------|------------|
| Humboldt | Hoopa | 08/12/92 | 21 | AM trap | Spadoni |
| Humboldt | Willow Creek | 08/12/92 | 24 | AM trap | Spadoni |
| Sonoma | Santa Rosa | 10/13/92 | 0/1 | AM trap | Lane |
| Sonoma | Monte Rio | 09/01/92 | 0/1 | AM trap | Milligan |
| Mendocino | Elk | no date | 0/2 | All purpose trap | Willis |
| Humboldt | Hoopa | 08/26/92 | 11 | AM trap | Spadoni |
| Humboldt | Hoopa | 08/19/92 | 9 | AM trap | Spadoni |
| Humboldt | Hoopa | 08/18/92 | 25 | AM trap | Spadoni |
| Humboldt | Scotia | 08/21/92 | 3 | AM trap | Spadoni |
| Sonoma | Santa Rosa | 08/13/92 | 0/1 | AM trap | Stewart |
| Humboldt | Hoopa | 07/22/92 | ? | AM trap | Spadoni |
| Humboldt | Hoopa | 09/17/92 | 1 | AM trap | Spadoni |
| Humboldt | Hoopa | 08/06/92 | 0/4 | AM trap | Spadoni |
| Humboldt | Arcata | 09/29/92 | ? | AM trap | Holzberger |

melonworm, *Diaphania hyalinata*, has been found in the past as either adults or larvae in the Palo Verde Valley of Riverside County (1937, 1960), and in the Winterhaven-Bard area of Imperial County (1960). Surveys at that time revealed no specimens of the pickleworm and no records of this species having ever occurred in California until now.

Two separate collections have been made from squash in dooryards in Orange County for an apparent new California record. The record find was on September 16 at Huntington Beach. The collection was made from crookneck squash by the property owner. The larvae were seriously attacking the fruit. A second collection was made about 10 miles away in the city of Anaheim. The collection was from the fruit of zucchini squash on October 29, again by the homeowner.

The pickleworm is active throughout the winter in areas where its hosts are continuously available, but emerges later in the spring in other areas. The eggs are laid singly and in small clusters among the hairs on flowers and leaf buds, small fruit, and young leaves. Eggs are irregularly shaped like yellow grains of sand. They hatch in about three days.

The larva has about 100 black spots evenly distributed over the body, until the fifth stage when the spots disappear and the larva turns green. The young pickleworms feed on the surface of the areas where the eggs are laid, but soon tunnel into and mutilate flowers, terminal buds, stalks, vines, and fruits. The fruits are made unfit for food and the plants are injured or killed. After ceasing to feed, the larva, about 1.9 cm. (3/4 inch) in length, turns coppery.

The pickleworms mature in 6 to 28 days and pupate under a thin cocoon in partially folded leaves or in trash under the plants. The dark brown pupa is approximately 1.6 cm. (5/8 inch) in length. The pupal stage lasts from 5 to 31 days.

The moth has a striking appearance with the wings a transparent yellowish-white marked with a contrasting yellowish-brown along the outer wing margins. The body is white below and brown above with a purplish reflection. The tip of the abdomen has a conspicuous darker (rounded) anal brush. The wingspread is approximately 3.2 cm. (1.25 inches).

Detection notes include:

1. A mass of watery frass is pushed out of the entrance hole of the fruit, usually on the shady side unless foliage is dense.
2. Infested fruit usually shows decay symptoms.
3. Small pickleworm holes are easily overlooked.
4. Adults are primarily night fliers and are not attracted to blue neon light traps.
5. Pupation usually takes place on the exterior of the plant.
6. Preferred host is zucchini; summer squash blooms are attractive to this moth.
7. Four to five generations per year with peak populations occurring in July.

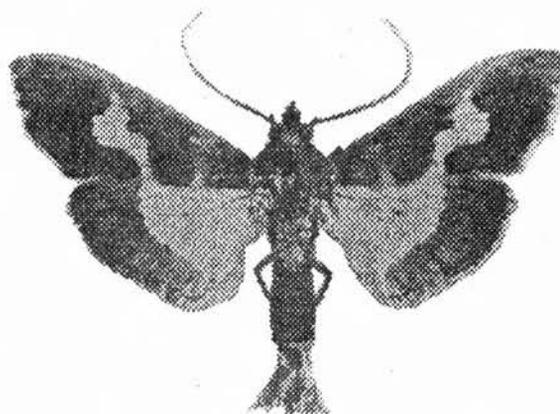


Fig. 1. Adult of the pickleworm, from a photo by C.S. Papp.

GIANT WHITEFLY, *Aleurodicus dugesii*, -(Q)- This very striking whitefly was discovered for the first time in California near Balboa Park in San Diego, San Diego County. The collection was originally submitted to the Agricultural Commissioner's office by a city employee from the park nursery. The collection was made on October 15, from hibiscus plants. We were going to call this species the Duges' whitefly, but San Diego County entomologist David Kellum and Mike Rose of Texas A & M University have suggested the common name used here, the giant whitefly, because of its enormous size. It measures 3mm in body length and has a 5mm wing span. The name giant whitefly does seem descriptive and easy to use, but bear in mind that there are other whiteflies in the same subfamily from tropical South America that are even larger.

This whitefly is the second member of the whitefly subfamily Aleurodicinae to be found in California. The other member of this subfamily is *Paraleyrodes minei*, but the genus *Aleurodicus* differs in that the arrangement of compound pores are different in the pupae, and the adults of *Aleurodicus* are much larger and have a more complex wing venation (for morphological comparisons with *Paraleyrodes* see CPPDR 10(1-2):8-11, 1991). The main character which separates this subfamily from the subfamily Aleurodinae, to which most of the world whiteflies belong, are the presence in the pupae of compound wax pores and apical claws on the legs. The adults are very large in the genus *Aleurodicus* and in several related genera. The pupae produce long cylindrical rods of wax from the dorsal compound pores, and in the case of *A. dugesii*, the wax rods extend almost an inch or more from the leaf surface. The adult females of *Aleurodicus* lay their eggs in meandering spirals with tufts of fluffy wax deposited around each egg. These egg tracks are similar to the egg tracks of spiraling whitefly, *A. dispersus*, with which many quarantine inspectors are already familiar.

The San Diego finds were primarily on hibiscus, which was heavily infested, but immatures and egg tracks have been found on ivy, xylosma, palm (*Howea forestiana*), apricot, bird-of-paradise, and morning glory. In addition, published records also indicate that begonia and hibiscus are preferred hosts, and it is also known to feed on *Annona*, *Chrysobalanus* and *Morus*. However, the full extent of its host range is not known at this time.

The giant whitefly was originally collected in Guanajuato, State of Guanajuato, Mexico in 1896. It is known from numerous other locations in Mexico including Zacatecas and Miraflores, Baja California del Sur. The San Diego infestation may represent natural spread from Baja California. It is reported also from southern Texas. The San Diego County infestation sites include the cities of San Diego, Carlsbad, and San Ysidro.

It has the economic potential to be quite a nuisance in the more southern coastal areas of California, particularly since there is so much hibiscus planted in this area. It is a copious wax producer, and the infested leaves are completely flocced with the white material. This wax can blow with the breezes, often carrying honeydew with it, and cause problems with outdoor furniture, cars, swimming pools and air conditioning vents. Similar damage was caused by the spiraling whitefly in Hawaii before it was brought under effective biological control. Biocontrol researchers have noticed parasite activity in this species in Mexico on previous occasions, and steps are being taken to obtain them in an effort to control the California infestation.

Morphological information on the whitefly is included in Figures 2-3. The pupae of this species differ from the commonly encountered spiraling whitefly by possessing seven pairs of compound

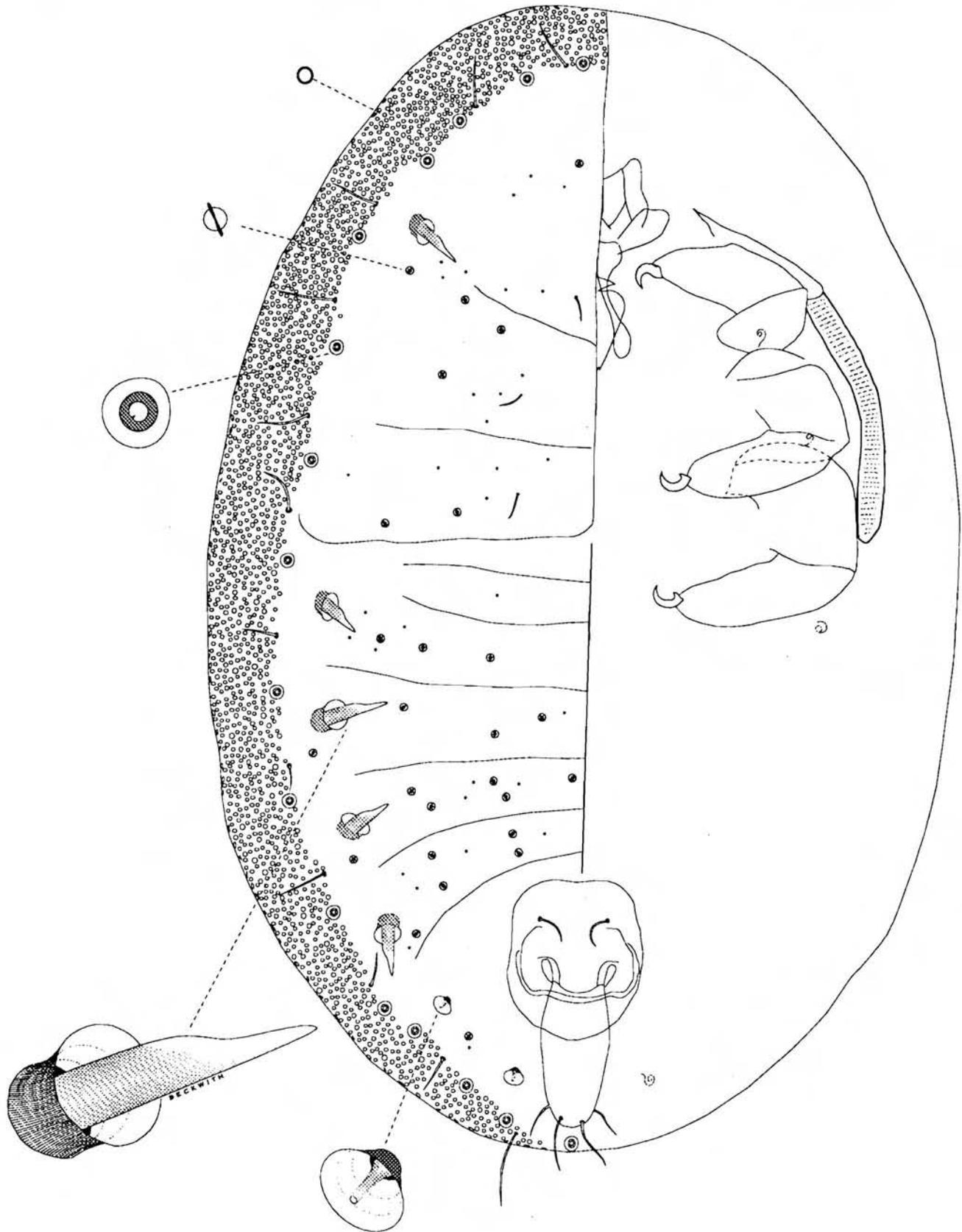


Fig. 2. Pupa of giant whitefly, *Aleurodicus dugesii*.

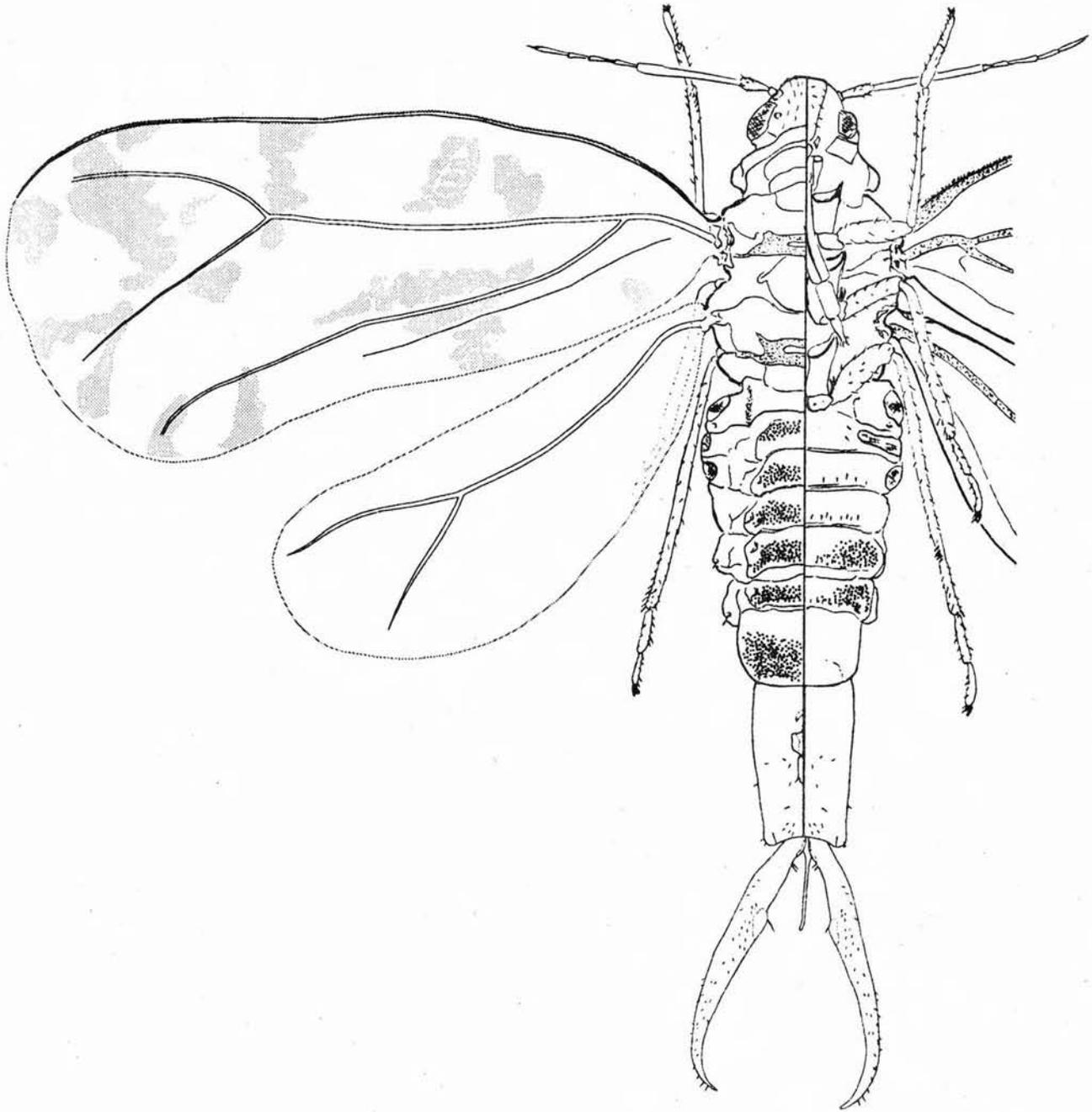


Fig. 3. Adult male of giant whitefly, *Aleurodicus dugesii*.

wax pores. Spiraling whitefly pupae lack the two pairs of smaller compound pores on the posterior parts of the abdomen near the vasiform orifice. Adults of the two species appear to be very similar except for the wing markings in *A. dugesii*, and the egg-track patterns produced by both species seem to be basically the same.

NEW COUNTY RECORDS

BLUEGUM PSYLLID, *Ctenarytaina eucalypti*, -(C)- The northward expansion of this eucalyptus feeding species is continuing. It has been collected for the first time in Mendocino County at Redwood Valley. The collection was made by Jim Xerogeanes on October 8 from *Eucalyptus gunnii*.

A PLANTHOPPER, *Delphacodes pseudoseminigra*, -(C)- This unusual, tiny, shortwinged plant hopper (Fig. 4) was found in a third California county. The collection was made on October 13 at San Fernando, Los Angeles County by Wagih Awad. The collection was made from a lawn, as were the previous California records. The preferred host seems to be St. Augustine grass. The previous California records were from Orange, Orange County in 1973 and Carpinteria, Santa Barbara County in 1983. Nothing is known about the biology or economic potential of this species.

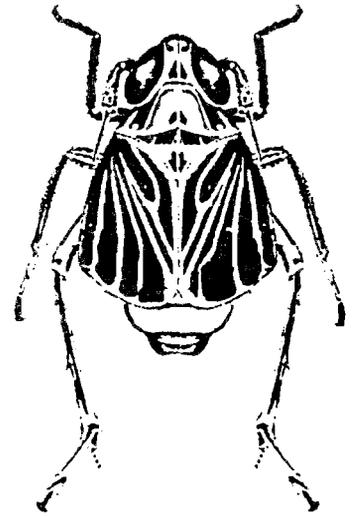


Fig. 4. *Delphacodes pseudoseminigra*

PITTIOSPORUM PIT SCALE, *Asterolecanium arabidis*, -(B)- This distortion-causing pit scale has been in California for many years, although it has relatively limited distribution and it isn't seen very often. It was recently found in a new county location, however. The collection was made in Humboldt County at Hoopa on October 28. The collection was made by Peter Haggard from *Penstemon* sp.

BANDEDWINGED WHITEFLY, *Trialeurodes abutilonea*, -(C)- This whitefly, a relative of the greenhouse whitefly, is common at times in both the Imperial and San Joaquin valleys of California, where it is often associated with cotton production. During recent surveys for the sweetpotato whitefly in central California, it has been found in two new county locations. The first record is from Sutter County, collected at Meridian on October 28 from *Abutilon theophrasti* by McKee. The second collection was at Ripon, San Joaquin County also on October 28 from *Sonchus* and *Taraxacum* outside a nursery, collected by Kirby Brown.

WOOLLY WHITEFLY, *Aleurothrixus floccosus*, -(B)- This pest of citrus has been in southern California for many years. Recently it has been found established in the San Francisco Bay region and yet another new Bay Area record can now be added. It has been collected for the first time in San Mateo County at Redwood City on December 1. The collection was made by Ronald Pummer from a lemon tree.

AUSTRALIAN SOD FLY, *Inopus rubriceps*, -(B)- On September 23, this pest was found in a Sunnyvale lawn, a new county record for Santa Clara County. Almost two weeks later it was also found in a lawn in Cupertino. Previous records show Australian sod fly findings in San Mateo, Alameda, Contra Costa, San Francisco, Sonoma and Santa Cruz counties.

EXCLUSION

A number of "A," "B," and "Q," pests were discovered during the period of time covered by this report in various California nurseries and other destination sites for incoming plant materials. Eradicative actions have been taken on these infestations.

NESTING WHITEFLY, *Paraleyrodes minei*, -(Q)- This unusual whitefly species is known from San Diego, Orange and Los Angeles counties. It was first recorded from California in San Diego in 1985. Recently it was discovered in a nursery outside the known infested area. It was collected from citrus nursery stock at Oxnard, **Ventura** County on September 25 by Ellen Kragh. The sample was received in the identification lab in October. Two other collections were made at nurseries that are within the known infested counties including Long Beach, Los Angeles County from lemons on November 4 by David Cassidy and at San Diego from Fallbrook, San Diego County on November 30 by Tracy.

A PALM WHITEFLY, *Aleurotrachelus* sp. near *atratus*, -(Q)- This whitefly was collected from *Ravenea rivularis* palms at a nursery in Petaluma, **Sonoma** County. The collection was made by P. Lane on September 28 and again on October 6.

SANSEVEIRIA SCALE, *Parlatoria proteus*, -(Q)- Several specimens of this armored scale species were found in conjunction with the above whitefly find at a Petaluma, **Sonoma** County nursery by P. Lane.

MAGNOLIA WHITE SCALE, *Pseudaulacaspis cockerelli*, -(A)- This frequently encountered species has been found on cocos palms, *Syagrus* sp. and *Strelitzia nicolai* at a nurseries in Orange, **Orange** County. The collections were made on September 29 and October 21 by T. Do. Richard Tiffer made a further collection in Orange County from Seal Beach from *Archontophoenix* and *Strelitzia* on October 22. Another collection was made by Janet Davey at Upland, **San Bernardino** County. The collection was made on October 13 from *Phoenix roebelenii* palms which supposedly were obtained from a wholesale nursery in Vista, San Diego County.

GREEN SHIELD SCALE, *Pulvinaria psidii*, -(A)- Another scale species commonly encountered on incoming quarantine shipments, this pest was also found in an **Orange** County nursery. On October 7, specimens were collected from *Tristania conferta* and *Dodonea viscosa* by Richard Tiffer and James Wynn at Brea.

RED WAX SCALE, *Ceroplastes rubens*, -(A)- This scale was collected from schefflera plants at a nursery in Sebastopol, **Sonoma** County. The find was made by Hitoshi Kobayashi on October 29.

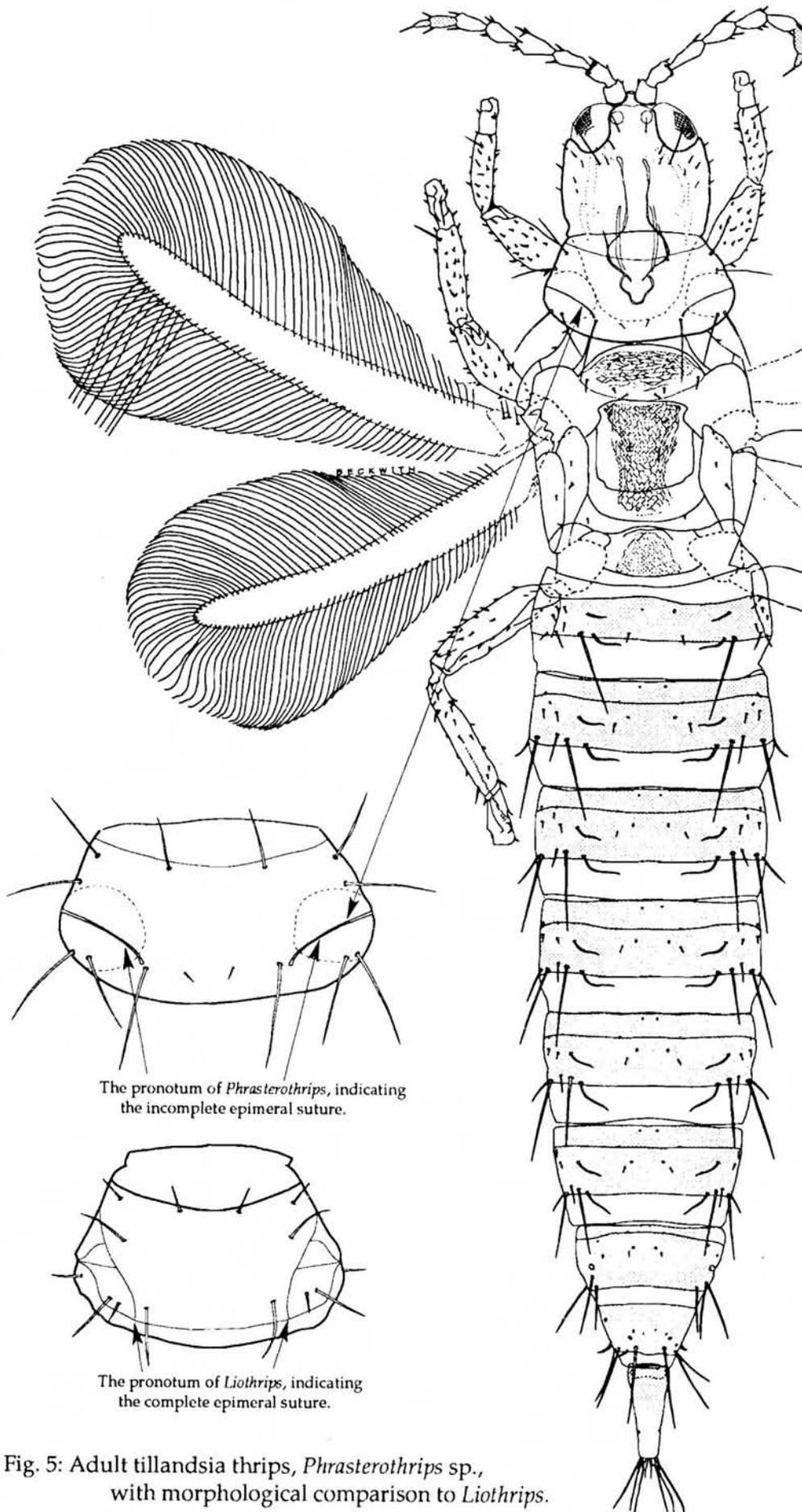
PITTOSPORUM SCALE, *Parlatoria pittospori*, -(B)- This scale was collected from Protea plants at a nursery in San Diego, **San Diego** County on October 30 by Emينو.

A TILLANDSIA THRIPS, *Phrasterothrips* sp., -(Q)- This large member of the family Phlaeothripidae (Fig. 5) is occasionally encountered in quarantine on tillandsias (*Tillandsia* sp., Bromeliaceae) from the new World tropics. On October 3, Bruce Rohn encountered these thrips on tillandsias growing

The genus *Phrasterothrips* contains a poorly understood group of primarily South American species, although there are several species known from Costa Rica and Florida. The species that have been intercepted on *Tillandsia* several times here in California probably are undescribed.

A collection of this thrips from a greenhouse in Gardena, Los Angeles County in 1988 indicates that populations can build up and cause considerable damage to the host. The recent collection from Coarsegold, Madera County also indicated the potential of this thrips to cause economic injury to the host.

The species of *Phrasterothrips* from *Tillandsia* closely resembles some species of *Liothrips*, a much more common genus of thrips in the United States. However, the tillandsia thrips can be easily separated from *Liothrips* because the pronotal epimeral suture is incomplete and does not reach the posterior margin of the pronotum as it does in *Liothrips*.



The pronotum of *Phrasterothrips*, indicating the incomplete epimeral suture.

The pronotum of *Liothrips*, indicating the complete epimeral suture.

Fig. 5: Adult tillandsia thrips, *Phrasterothrips* sp., with morphological comparison to *Liothrips*.

in a greenhouse at Coarsegold, **Madera** County. This thrips is similar to species in the genus *Liothrips*, but is distinct primarily, because the pronotal epimeral suture is incomplete and does not reach the posterior margin of the pronotum. See illustrations in Figure 5.

SWEETPOTATO WEEVIL, *Cylas formicarius elegantu*, -(A)- All stages of this weevil were found infesting *Ipomoea batatas* tubers in a grocery store in Rosemead, **Los Angeles** County. The collection was made by Miguel Gonzalez on October 7.

PYRIFORM SCALE, *Protopulvinaria pyriformis*, -(B)- This soft scale was collected from a nursery in Santa Monica, **Los Angeles** County. The collection was made on November 13 on *Schefflera* plants by Dan Papilli.

McKENZIE MEALYBUG, *Dysmicoccus mackenziei*, -(Q)- A number of collections of this mealybug were made from the Bromeliaceae in two separate counties. The first collections were made on November 17 and 20 at Pacifica, **San Mateo** County. The collections were made from *Tillandsia*, *Vriesia*, and *Guzmania* by Jeffrey Garibaldi. Collected also by Bruce Rohn from *Tillandsia* spp. at Coarsegold, **Madera** County on December 7.

A TILLANDSIA MEALYBUG, *Chorizococcus* sp. undescribed, -(Q)- This mealybug was collected in association with the above mealybug species from *Tillandsia* and *Vriesia* at Pacifica, **San Mateo** County by Jeffrey Garibaldi.

TILLANDSIA PIT SCALE, *Sclerosococcus tillandsiae*, -(Q)- This scale insect in the family Asterolecaniidae infests the leaf bases and bracts of *Tillandsia* plants. The lower leaves often have to be pulled apart to find the scales. Specimens were collected at a tillandsia nursery in Coarsegold, **Madera** County on December 7 by Bruce Rohn.

AN ARMORED SCALE, *Abgrallaspis* sp. undescribed, -(Q)- Collected by Bruce Rohn from *Tillandsia* spp. at Coarsegold, **Madera** County on December 7.

AECHMEA SCALE, *Gymnaspis aechmeae*, -(A)- This shiny black scale is occasionally seen on bromeliads in quarantine. It was recently found by Jim Kenyon on this host at a nursery in San Diego, **San Diego** County on December 21.

AGLAONEMA SCALE, *Aspidiotus excisus*, -(Q)- This scale is commonly encountered on *Aglaonema* plants in quarantine. A series of collections were made from this host at a nursery in Lodi, **San Joaquin** County by Art Moretto and Tom Reed on December 29.

BORDER STATIONS

Pest interceptions at the borders of California still continue at a very fast pace, even late in the year. The next two pages recount some of the numerous interceptions made by the Border Station Plant Quarantine Inspectors (PQIs) during the time period covered by this issue:

RED IMPORTED FIRE ANT, *Solenopsis invicta* (or sp.)

| <u>BORDER STA.</u> | <u>PQI</u> | <u>ROUTE</u> | <u>HOST</u> | <u>DATE</u> |
|--------------------|-----------------------|----------------------|-----------------------|-------------|
| Blythe | Rogelio Perez-Argueta | TX to Los Angeles | WATERMELONS (25+) | 09/27 |
| | Martin DeLeon | FL to Lancaster | Empty U-Haul | 09/28 |
| | Glenn Moline | TX to Los Angeles | FIREWOOD | 09/29 |
| | Glenn Moline | AZ to Escondido | MEX fan palms | 09/29 |
| Needles | Tony Johnson | TX to Los Angeles | Empty U-Haul | 09/16 |
| | Tony Johnson | FL to Lemoore | HHGs/U-Haul | 09/18 |
| | Victor Walker | LA to Apple Valley | Plant/Soil | 09/18 |
| Vidal | Rose Mary Walker | TX to Idaho | Empty TRUCK | 09/21 |
| | Ken Armstrong | SC to Visalia | PRINT PAPER | 09/21 |
| | Robert Granger | TX/FL to Bakersfield | Empty TRUCK (100+) | 09/22 |
| | Ken Armstrong | MS to Fresno | FROZEN CHICKENS (50+) | 09/23 |
| | Rose Mary Walker | LA to Stockton | CHICKENS (17+) | 09/23 |
| | Ken Armstrong | NC to Fresno | PAPER PRODUCTS | 09/25 |
| | Frank Connors | TX to Pixley | Straw debris | 09/25 |
| | Ken Armstrong | TX to San Leandro | PIPE FITTINGS | 09/26 |
| Winterhaven | Frank Connors | SC to Visalia | PAPER ROLLS | 09/26 |
| | Michelle Van Horn | TX to San Diego | HHGs/U-Haul (25+) | 09/14 |

GYPSY MOTH, *Lymantria dispar*.

| <u>BORDER STA.</u> | <u>PQI</u> | <u>ROUTE</u> | <u>HOST</u> | <u>DATE</u> |
|--------------------|-------------------|---------------------|-------------|-------------|
| Hornbrook | Gary Leslie | NH to Sacramento | RV chassis | 10/01 |
| Long Valley | Jack Doyle | MI to Eureka | RV chassis | 10/04 |
| Truckee | Kevin Goodman | MI to San Francisco | RV trailer | 09/25 |
| | Sharon Bledsoe | NJ to Modesto | RV trailer | 09/27 |
| | Dan Rudolph | PA to Pollock Pines | RV trailer | 09/29 |
| | Sharon Bledsoe | MA to San Francisco | RV chassis | 10/11 |
| Winterhaven | Michelle Van Horn | VA to Sacramento | RV chassis | 10/04 |
| Yermo | Joann Williams | NY to Sequoia Park | RV chassis | 09/23 |
| | Cordie Foster | NJ to Los Angeles | Camper | 10/01 |
| | Cordie Foster | PA to Los Angeles | Camper | 10/02 |
| | Joann Williams | NJ to Reseda | Camper | 10/08 |

Some target weeds were also found in the last months of 1992, including:

- Spotted Knapweed, *Centaurea maculosa*
Found in WA floral arrangement. (Week of 3 November)
- Diffuse Knapweed, *Centaurea diffusa*
Found in OR scrap metal. (Week of 16 November)
- Spotted Knapweed, *Centaurea maculosa*
Found on ID hive pallets. (Week of 16 November)
- Found in MT floral arrangement. (Week of 16 November)
- Musk Thistle, *Carduus nutans*
Found with WY pine trees/soil. (Week of 4 December)
- Scotch Thistle, *Onopordum acanthium*
Found from NM. (Week of 4 December)

Also discovered at the border stations were a number of other unusual insects, including the following:

| | | | | | |
|--|-----------|--------------------|----------------------|--------------------|-------|
| Black Citrus Scale, <i>Parlatoria ziziphi</i> | Hornbrook | Al Rojas | CAN to San Francisco | Pomelos | 10/08 |
| Vanda Orchid Scale, <i>Genaparlatoria pseudaspidotus</i> | Dorris | Donna Garrison | WA to Los Angeles | Mangoes | 09/28 |
| Striped Cucumber Beetle, <i>Acalymma vittatum</i> | Blythe | Janet Sorrells | TX to Los Angeles | TRUCK | 10/04 |
| Snail Pest, <i>Zachrysia provisorica</i> | Blythe | Linda Wadley | FL to Los Angeles | Houseplants/Soil | 10/12 |
| Pickleworm, <i>Diaphania nitidalis</i> | Blythe | Louis Vasquez | GA to Los Angeles | Squash | 10/26 |
| Plumose Scale, <i>Morganella longispina</i> | Hornbrook | Leslee Gamlin | CAN to Folsom | Tangelos | 10/13 |
| Vanda Orchid Scale, <i>Genaparlatoria pseudaspidotus</i> | Dorris | Donna Garrison | WA to Los Angeles | Mangoes | 10/19 |
| White Peach Scale, <i>Pseudaulacaspis pentagona</i> | Blythe | Louis Vasquez | FL to Los Angeles | Persimmons | 10/24 |
| Luna Moth, <i>Actias luna</i> | Blythe | Steve Klingenmeier | MD to Los Angeles | Pickup bed | 11/12 |
| Maize Billbug, <i>Sphenophorus maidis</i> | Needles | Linda Martinez | KS? to Los Angeles | Cotton-picking bag | 11/10 |
| Spittlebug, <i>Prosapia</i> sp. | Yermo | Mike Tracy | FL to Ontario | Plant debris | 11/12 |
| Carob Moth, <i>Spectrobates ceratoniae</i> | Vidal | Lin Dupes | TX to Needles | Pomegranates | 11/15 |

For the last three months of 1992, there were many animal rejections at the California borders. Plant Quarantine Inspectors (PQI) stopped 33 ferrets from entering the state as well as these other unusual prohibited animals:

| <u>WEEKLY REP.</u> | <u>BORDER STA.</u> | <u>ORIGIN</u> | <u>ANIMAL</u> | <u>PQI</u> |
|--------------------|--------------------|---------------|-----------------|-----------------------|
| 7 October | Blythe | NM | raccoon | Rogelio Perez-Argueta |
| | Hornbrook | OR | monk parakeet | Charlie Hamilton |
| | Long Valley | NV | elephants | Jack Doyle |
| | Blythe | TN | squirrel | Lance Ebert |
| | Hornbrook | OR | monk parakeet | Denise Whitman |
| | Hornbrook | OR | monk parakeet | Brenda Johnson |
| | Yermo | CO | monk parakeet | Brian Blakely |
| 21 October | Needles | VA | gerbil | Victor Walker |
| | Needles | AL | gerbil | Tom Duitsman |
| 16 November | Blythe | FL | kinkajou | Jim Hardin |
| 16 December | Hornbrook | OR | turkey vultures | Brenda Johnson |
| | Yermo | NV | coatimundi | Elliott Morris |

PLANT PATHOLOGY HIGHLIGHTS

CHRYSANTHEMUM WHITE RUST, *Puccinia horiana*, -(A)- Due to the development of optimum cool and damp weather conditions in November for chrysanthemum white rust (CWR) expression, CWR project personnel detected CWR in plant blocks that appeared CWR-free during surveys done in the summer months. Because the likelihood of finding any CWR infestations is greatest in the fall, a survey of chrysanthemum producers throughout the state was initiated.

In the last quarter of the year, CWR continued to be detected in Santa Barbara, Santa Clara, and Santa Cruz counties.

NEW STATE RECORDS

EURASIAN POPLAR LEAF RUST, *Melampsora larici-populina*, -(Q)- Eurasian poplar leaf rust was found for the first time in California in October 1992. There have been 75 finds in 16 counties between October and December 1992. The first occurrences for each county where the disease has been found are listed below.

| <u>County</u> | <u>City</u> | <u>Date</u> | <u>Collector</u> | <u>Host</u> |
|-----------------|----------------|-------------|--------------------|--|
| Alameda | Sunol | 11-02-92 | Eaton | <i>Populus</i> spp. |
| Butte | Gridley | 11-02-92 | Stewart | <i>P. nigra</i> |
| Contra Costa | Danville | 10-27-92 | Fonseca | <i>P. fremontii</i> |
| Los Angeles | Woodland Hills | 10-29-92 | Tanaka | <i>P. nigra</i> <i>P. fremontii</i> |
| Marin | Novato | 10-26-92 | McCartney | <i>P. nigra</i> |
| Merced | Merced | 11-10-92 | McCollum | <i>P. nigra</i> |
| Monterey | Salinas | 11-23-92 | Oliver/Guzman | <i>P. trichocarpa</i> |
| Napa | Napa | 11-03-92 | McCartney | <i>P. nigra</i> |
| Orange | Garden Grove | 12-01-92 | Fesler | Poplar hybrid |
| San Diego | Bonsall | 11-13-92 | Metcalf/May | <i>P. fremontii</i> |
| San Joaquin | Linden | 11-16-92 | Moretto/Williamson | <i>P. nigra</i> <i>P. fremontii</i> |
| San Luis Obispo | Morro Bay | 10-30-92 | Little | <i>Populus</i> sp. |
| San Mateo | Portola Valley | 10-27-92 | Pummer | <i>Populus</i> sp. |
| Santa Barbara | Santa Maria | 11-05-92 | Burns | <i>Populus</i> sp. |
| Sonoma | Sebastopol | 11-03-92 | McCartney | <i>P. nigra</i> |
| Ventura | Camarillo | 10-20-92 | Cozzola | <i>Populus</i> sp. |

Eurasian poplar leaf rust (EPLR) is endemic to Europe and Asia and has been found throughout the temperate world except North America until recent years. EPLR, which infects species of *Larix* and *Populus*, was first reported in North America in southwest Washington and northwest Oregon in October 1991. These reported infestations occurred on 125 acres in Oregon and 47 acres in Washington.

In 1992, APHIS cooperated with the states of Washington and Oregon to conduct delimiting surveys to determine the extent of the infestation. Based on survey data and published information, APHIS believes that suppression and/or eradication are not viable options. Plant Protection and Quarantine has decided not to initiate any actions or a federal domestic quarantine for this disease. The major facts influencing this decision are:

1. The disease is known to exist in California, Oregon, and Washington;
2. Literature on EPLR suggests the spores of this species travel 1,200 miles on wind currents and can establish new infestations;
3. The high probability that the fungus is widely distributed and unreported in other states;
4. In California, Oregon, and Washington the disease appears to be a late-season rust which has proven to be a weak pathogen compared to *Melampsora medusae* which is native to the Eastern United States; and
5. There has been no support for regulation from the pulp and paper industry which is probably the largest producer and user of poplar.

The primary signs of EPLR infection of hybrid poplars include small orange-yellow spots on the upper and undersides of leaves, giving it the name "golden glow." With highly susceptible varieties, the leaves turn brown at the edges, wither and fall prematurely. With heavy infestations, nearly all leaves of susceptible clones may shed within three weeks. Infected conifers will exhibit similar symptoms, although defoliation is generally not severe and yields may be decreased.

NEMATOTOLOGY HIGHLIGHTS

CORNCYST NEMATODE, *Heterodera zaeae*- Corn cyst nematode (CCN) has been identified for the second time in the Western Hemisphere in Cumberland County, Virginia, by the Virginia Polytechnic Institute and State University. The following reports discuss the current find and past research on this serious pest. The first report was written by Glen Lee, Deputy Administrator, Plant Protection and Quarantine:

The Virginia Department of Agriculture and Consumer Services reported in mid-October that CCN (*Heterodera zaeae*) had been found in Cumberland County. Identification was first made by the Virginia Polytechnic Institute and State University. Positive identification was confirmed by Dr. Lorin R. Krusberg, a noted authority on CCN and Professor, Department of Botany, University of Maryland. The nematode is a serious pest in India and Pakistan where it feeds on the roots of corn, barley, oats, wheat, and several other grasses.

This is the second time CCN has been reported in the Western Hemisphere. It was first found in Maryland in 1981 and subsequently found to be present in four counties in eastern Maryland.

Virginia officials with the aid of scientists and regulatory officials from Maryland and Plant Protection and Quarantine are assessing this new find and developing proposals for dealing with this nematode. No connection has been made between this infestation and the infestation in Maryland.

This second report is from Paul Lehman, Chair, SON Regulatory Committee:

The corn cyst nematode was first found in the U.S. in Kent Co., Maryland, by Drs. L. R. Krusberg and L. M. Goff in February 1981. Outside of the U. S., the CCN occurs in India, Pakistan and Egypt. The site in Virginia where the CCN was found is south of Richmond on the Appomattox River in a field that is an old site of a Civil War Barge Dock. The grower noted that in that past 5 or 6 years, yields in this field declined from 120 bu to 20 bu/acre after he stopped using Furadan. Dr. Jon Eisenback at VPI, however, indicates that any assessment of yield loss due to the CCN is complicated by the fact that a very high population of *Trichodorus*, stubby root nematode, is also present in this field.

During the past ten years, Dr. Krusberg has conducted considerable research on this nematode in field, microplots, greenhouse and growth chambers studies. In a recent telephone conversation, he indicated that nematicide tests have demonstrated that losses due to this nematode are minimal in the fields where the CCN occurs in Maryland. In microplots, however, the nematode has caused losses ranging from 22 to 73%, depending on fertility and soil texture. His research has indicated that yield losses due to the CCN are much greater at higher soil temperatures. This may explain why greater losses have occurred in microplots, since soil temperatures are much higher in these plots than in a field with a closed canopy. He believes that this nematode has potential to cause considerably more damage in southern regions of the U.S. where higher soil temperatures occur for extended periods during the growing season. Dr. Krusberg plans to compare the populations from VA and MD.

An interesting regulatory side note is that not only is there a historical military connection at the Appomattox River site in Virginia where the CCN is found, but there may be a direct military connection with the location where the CCN is found in Maryland. The nematode is found in the Aberdeen Proving Grounds area where among other things the military brought in shiploads of raw soil from all over the world in order to predict how military equipment will function in different soil types.

BOTANY HIGHLIGHTS

PERENNIAL SOWTHISTLE, *Sonchus arvensis*, -(A)- The elusive perennial sowthistle has been found once again in Tulelake, Modoc County, marking a new township record. This good detection work by Gene Deal occurred back on August 5 and was the first find of this weed since 1978. For the current distribution of perennial sowthistle, see page 91.

SPOTTED KNAPWEED, *Centaurea maculosa*, -(A)- Another significant find that did not make it into the last issue of the CPPDR was a new county record for spotted knapweed. This noxious weed has been discovered in **Sonoma** County by Robin Breckenridge. The find occurred on September 16 near Fort Ross. A map of the current statewide distribution for spotted knapweed is presented on page 92.

NAME CHANGE: Everyone take note, the scientific name for dalmatian toadflax has changed from *Linaria dalmatica* to *Linaria genistifolia* spp. *dalmatica*. An updated map of this A-rated weed appears on page 93.

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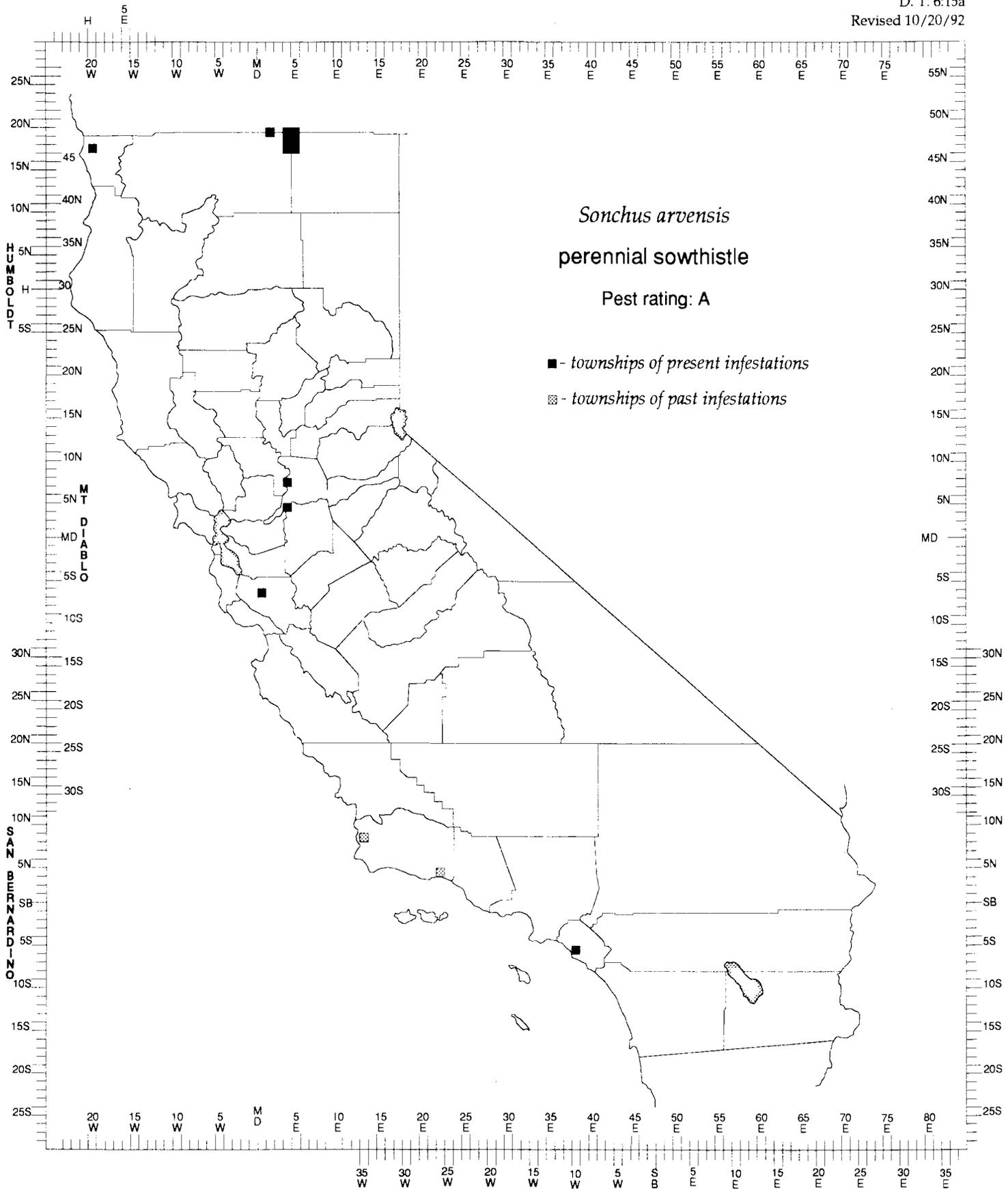
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DETECTION MANUAL

D. T. 6:15a

Revised 10/20/92



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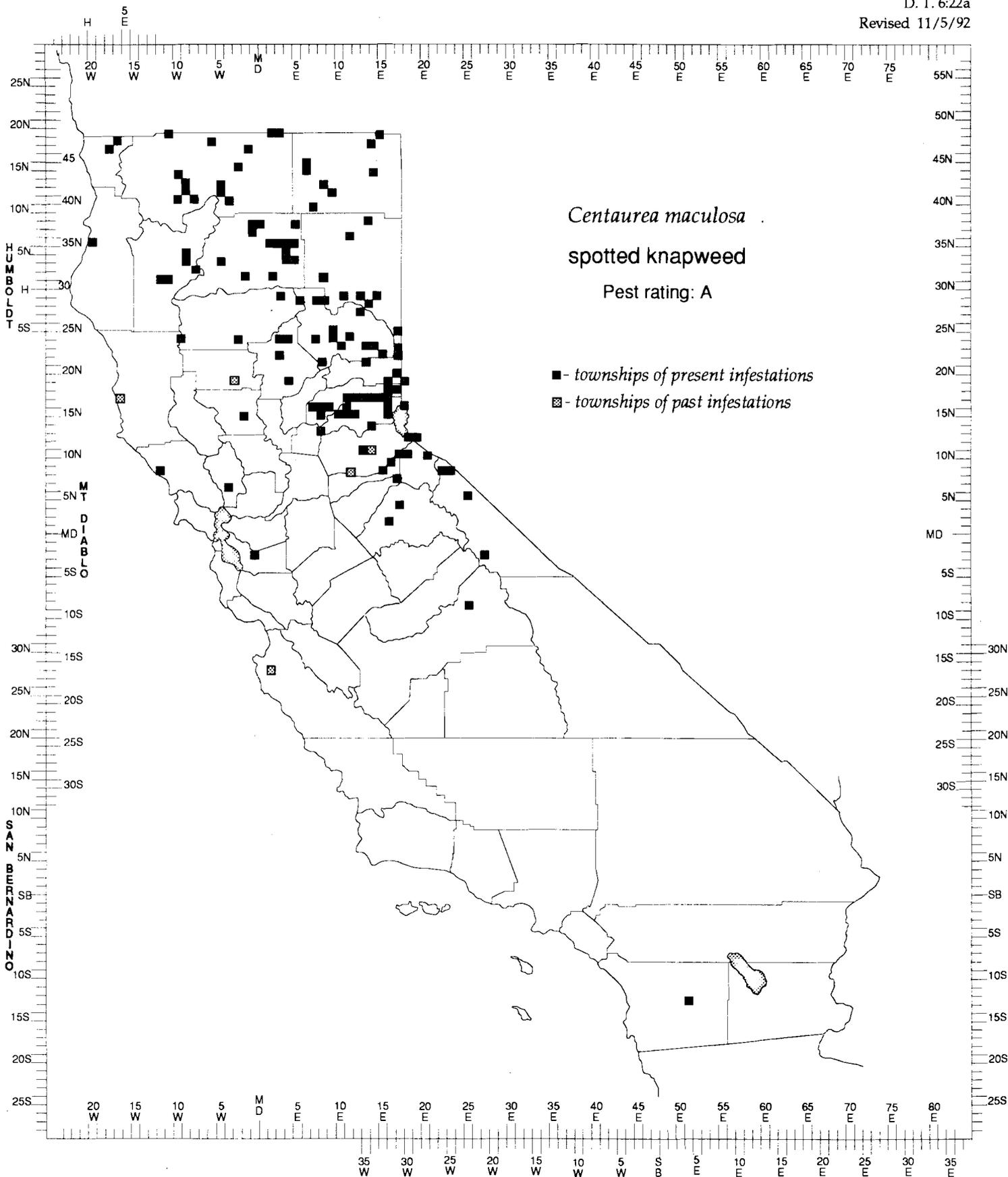
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DETECTION MANUAL

D. T. 6:22a

Revised 11/5/92



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DETECTION MANUAL

D. T. 6:6a

Revised 3/3/93

